Co-Managed Marine Protected Areas: A Case Study of Friends of Nature, Belize

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ABSTRACT

A number of marine protected areas in Belize are now being co-managed between the government and local non-governmental organizations. As part of the Caribbean Coastal Co-management Project implemented by the Caribbean Conservation Association, a case study on this co-management arrangement was prepared. The case study focused on Friends of Nature (FON), a non-governmental organization based in Placencia, Belize which has co-management responsibility (with Forest Department and the Fisheries Department) for day-to-day management of Laughing Bird Caye National Park (LBCNP) and Gladden Spit Marine Reserve (GSMR). The co-management arrangement is regarded as a delegated form of co-management where management authority is delegated to local institutions (in this case FON). In return, the government is informed, and reviews and endorses, where it sees fit, decisions to be taken by FON. The co-management arrangement with FON is currently in the implementation phase. This paper will present background on the context of the MPA management, current outcomes and performance of the co-management, and lesson learned and conditions for successful implementation of co-management.

INTRODUCTION

The western Caribbean has been a focal area for coral reef conservation for many years owing to its extensive reef areas associated with the Meso-American Barrier-Reef System (MBRS), the second largest barrier reef in the world, after Australia's Great Barrier Reef. There are numerous marine protected areas (MPAs) and research stations throughout the MBRS area. Research and conservation efforts in the area have been carried out through a plethora of national, regional and international agencies, both governmental and non- governmental. As a result, there has been a bewildering array of programs and projects.

In this case study, we focus on Friends of Nature (FON), a non-governmental organization (NGO) based in Placencia, Belize which has co-management responsibility (with Forest Department and the Fisheries Depart-

ment) for day-to-day management of Laughing Bird Caye National Park (LBCNP) and Gladden Spit Marine Reserve (GSMR). FON co-manages public protected areas with the government and with a local advisory committee. This can be considered to be a delegated type of co-management where management authority is delegated to local institutions (in this case FON) and government is informed of decisions to be taken and government reviews and endorses those decisions.

The area of specific interest is the southern coastal zone and the Southern Reef Complex that includes the two MPAs that are co-managed by FON. Both protected areas contribute to the Meso-American Barrier Reef Reserve System. Fishing and tourism are the dominant caye-based economic activities in the area. There are a number of threats to the marine and coastal resources including unsustainable fishing practices, tourism industry, improper land use, effluent discharges, policy and enforcement, and transboundary issues.

The co-management arrangement with FON is currently being implemented. FON has a strategic plan, a Board of Directors, an Executive Director and staff. A management plan exists for both MPAs, and financing has been secured for the immediate future. The MPAs are in operation and the resources are being conserved. However, there are both positive and negative aspects of the co-management arrangement with FON, and this paper outlines the successes and challenges of FON's experience thus far.

DEFINING CO-MANAGEMENT

Definitions of co-management focus on sharing management responsibility and authority between government and stakeholders (e.g. Pinkerton 1989. McConney 1998, Brown and Pomeroy 1999, Pomeroy 2001, Berkes et al. 2001). The fundamentals of what co-management should be, and is in practice, have been extensively researched (Jentoft 1989; Kuperan and Abdullah 1994; Pomeroy and Berkes 1997). Co-management encompasses several possible arrangements that are often depicted as a scale constructed from the relative sharing of responsibility and authority between government and stakeholders (Pomeroy and Berkes 1997, Berkes et al. 2001).

Based on international and Caribbean literature it was determined that three degrees and labels would be appropriate (see Figure 1).

Government has the most control	**Consultative co-management**	**Collaborative co-management**	**Delegated co-management**	*People have most control*
	Government interacts often but makes all the decisions	Government and the stakeholders work closely and share decisions	Government lets formally organised users/ stakeholders make decisions	

Figure 1. Degrees and Labels of Co-Management (Adapted from: ICLARM and IFM 1998)

The first is "consultative co-management" which represents what is most common in several locations (Brown and Pomeroy 1999). People commonly use and understand the term consultation

Next is joint action and decision-making. This is where several countries seem to be headed. The term "collaborative co-management" was preferred to "cooperative co-management" because it connotes stronger partnerships, and the use of "cooperative" may be confused with the formal organisation types of the same name (Kurien 1988, McConney et al.1998).

Third is "delegated co-management" that includes, but is not limited to, community-based management since national co-management structures are especially common in fisheries management (Jacobs 1998, McConney and Mahon 1998). Few cases in the Caribbean appear to be at this level, but it is not uncommon in other areas of the world (Baird 2000).

CO-MANAGEMENT IN BELIZE

The type of co-management that FON is engaged in is that of co-management of public protected areas between agencies of the Government of Belize and an NGO (FON) with a local advisory committee composed of various local stakeholders, such as fishers, community officials, and tourism operators contributing to this process.

This is one of several types of co-management being implemented in Belize which also include:

i) Co-management of public protected areas between government and NGOs;
ii) Co-management of private reserves between the landowner (normally an NGO) and government; and
iii) Co-management between government and communities bordering or nearby a protected area and the community is represented by a community-based organization (Ravndal 2002).

FON is engaged in what is regarded as a delegated type of co-management where management authority is delegated to local institutions (in this case FON). In return, the government is informed, and reviews and endorses, where it sees fit, decisions made by local institutions. Overall, the idea and implementation of the concept of co-management for MPAs in Belize appears to be fundamentally one of devolving government management responsibilities to local NGOs. In undertaking this devolution, it is felt that these local NGOs will improve the management of coastal resources and that the government will reduce the burden on its already inadequate resources to effectively manage some of the country's most economically valuable natural resources by encouraging NGOs to seek donor funding for resource conservation and management.

METHODS

In gathering data for the FON case study, our emphasis was on understanding the conditions and factors for successful co-management as perceived

by the stakeholders at the research sites. The data collected for use in preparing this case study were collected using three methods:

i) *Document analysis* — An extensive collection of secondary data was reviewed and included statistical reports, MPA reviews, government documents and reports, 'gray literature including theses and academic project reports, non-governmental organization reports, and internet searches.

ii) *Focus groups* — Focus group meetings were held with staff and Board of Directors of Friends of Nature, fishermen in Placencia, and government officials from the Fisheries Department and Coastal Zone Management Authority and Institute.

iii) *Key informants* — Key informant interviews were held with senior fishermen, government department heads, business-people in Placencia and Independence, FON staff, and FON Board of Directors.

MARINE PROTECTED AREAS IN BELIZE

In Belize, co-management takes place only in MPAs. The Fisheries and Forest Departments have signed co-management agreements for six MPAs with NGOs such as Belize Audubon Society, Friends of Nature, Toledo Association for Sustainable Tourism and Empowerment and Toledo Institute for Development and Environment. These co-management agreements vest day-to-day management and fundraising responsibilities for the respective MPA with the NGO. For Government, this allows nationally important areas to be managed in the absence of state resources to do so. For communities, this is meant to increase participation in the management of the local resources upon which they rely for subsistence and income generation.

Belize has an extensive and diverse coral reef ecosystem, with all the main reef types represented: fringing reefs, barrier reef, offshore atolls, inshore patch reefs and faroes. There are also extensive related habitats such as mangroves and seagrass beds. The Belize Barrier Reef extends from the northern border with Mexico south for about 260 km to the Sapodilla Cays near the border with Guatemala. Given that these reef habitats are of considerable economic importance to Belize, with fishing and tourism being the two main uses, the establishment of marine and coastal protected areas has been an essential component of marine conservation in Belize.

The Forest Department of the Ministry of Natural Resources and the Environment, the Fisheries Department of the Ministry of Agriculture, Fisheries and Cooperatives, and the Coastal Zone Management Authority and Institute are the primary government departments that are responsible for the establishment and management of MPAs in Belize. MPAs have been declared on an *ad hoc* basis since the mid-eighties, usually in response to requests from conservation NGOs for increased protection of threatened species or habitats. As a result, there has been little effective coordination in the administration or management of MPAs in Belize.

In 2000, due to signs of overexploitation and in an effort to maintain a sustainable fishery, the Fisheries Department declared a network of strategic marine reserves (Fisheries Department 2000). This proposal would eliminate

individual management and advisory committees for each reserve and instead create one management team/advisory board for each zone. MPA entrance fees encompass all reserves in a zone, so that several attractions can be enjoyed by tourists for one ticket price. The Fisheries Department will specify the relative roles of government and other agencies and any affects this may have concerning the co-management arrangements they have with local NGOs.

There are currently thirteen MPAs in Belize, seven of which are World Heritage Sites. Of the thirteen, eight are designated marine reserves, administered by the Fisheries Department. Additionally, there are two Natural Monuments, one National Park, and one Wildlife Sanctuary with significant marine habitat. Parks fall under the jurisdiction of the Forestry Department. In addition, there are seven Crown Reserves, which are essentially bird sanctuaries on small cayes and seven coastal protected areas. About 16 percent of Belize's marine territory (based on a three mile limit) lies with MPAs (CZMAI 2001). It has been suggested that 30 percent of the coastal zone should be closed to fishing to adequately provide ecological benefits. Currently the percent of the marine territory (based on a three mile limit) established as 'no-take' zones is 1.3 percent (CZMAI 2001). The role of NGOs and local community-based management is expanding and more advisory committees are being established, thereby increasing the number of cooperative management arrangements, both formal or informal.

In June 2000, Belize's managed MPA system was evaluated as being 'moderately satisfactory'. This indicates that there are minimal elements necessary for management, but there are also deficiencies that prevent effective management and reduce the probability that conservation objectives will be achieved. There are good policies, laws, knowledge, biogeographic characteristics, and management of legal and illegal uses. The evaluation noted that there was generally good community support for the MPAs, although a small but vocal group of fishermen openly stated their opposition to the MPAs. Management programs and planning are essential elements which were variously successful and in need of improvement (McField 2000). This evaluation continues to be relevant to current conditions of MPAs in Belize.

SOCIO-ECONOMIC CONTEXT FOR FON CO-MANAGEMENT

Governance Structures

Belize is steeped in democratic traditions with regular elections, which are keenly contested between two parties. Political power is concentrated in the central government. Although Village Councils were recently established as a form of municipal governance, their institutional base is weak and there is little real devolution of power. District Councils are being formed and some attention is being given to strengthening this level of government.

The villages in the FON area are administered through Village Councils,which are established and constituted under the Village Councils Act (Chapter 88, Revised Edition 2000). A Village Council is composed of seven members elected by village residents, with a Chairperson as its head. The

Council is empowered to make by-laws for the rule and government of the village and enforce the by-laws. Placencia Village Council is one of the first village councils to develop by-laws. The Village Council Act is not as powerful as it seems as the centralized nature of the Belize government and other government Acts supercede its provisions.

Stakeholders

Belize, formerly known as British Honduras, became a British colony in 1862 and gained independence in 1981. The British colonial experience has made Belize more of a Caribbean country culturally, and in terms of its political traditions, its demographics, and other cultural factors such as religion, language, and social organization (ie: gender relations), as compared to its immediate neighbours.

The population of the Placencia area is composed of Creole, of African and European descent; Garifuna, a mix of African and Carib ancestry; Mestizo, a mix of Amerindian and European peoples; and Ketchi and Mopan Maya. The strong ethnic/color and gender divides which exist in Belize society still persist but are changing. There has been immigration to many communities by outsiders and the population now lives in relatively heterogeneous ethnic communities. The dominant ethnic group in Placencia, Independence and Monkey River is Creole and in Seine Bight and Hopkins is Garifuna.

While there has been growth in the population of the area from 1980, the most growth has occurred between 1990 and 2000. Many people taking up residence in the area are new arrivals attracted to the area for its natural beauty and for jobs in the tourism sector.

Fishing and tourism are the dominant caye-based economic activities in the area. Fishing has historically been a full time subsistence and commercial activity in the area. With the decline in fish catch, an increase in tourism has allowed the community to survive. Since the 1980s, tourism has increased as a major economic sector in the village. So far people have been able to balance off both activities. As the lobster season wanes, the tourist season of November to April picks up. Fishermen transform themselves into tour guides and their wives into tourist service industry.

Local stakeholders that use the resources or can influence negatively or positively the natural resource of LBCNP and GPMR are Placencia tour operators, Placencia hotel owners, Monkey River tour operators, Placencia Producers Cooperative, shrimp farmers, Placencia-Belize Tourism Industry Association, fishers of Monkey River, Hopkins and Placencia, tourists, the general population of the Placencia peninsula area, citrus and banana plantations around Mango Creek/Independence, and Seine Bight fishers. Other actors and stakeholders involved in FON's MPA co-management process, include government agencies (Forestry, Fisheries), FON donors (The Nature Conservancy, Oak Foundation), and fishers from Honduras and Guatemala.

Fisheries

The fisheries sub-sector has been of growing importance to the Belizean economy since the 1970s. Contribution to employment (over 3,200 fishers),

GDP (5 %), and foreign exchange earnings by capture fisheries and aquaculture, rank this industry third in importance to the economy of Belize (MAFC 2002). Fishing has traditionally revolved around lobster and conch harvest for export, but shrimp and finfish are now also important to the economy, the latter including recreational fishing. Exports of fisheries products are expected to continue increasing due to the growth of aquaculture. Farmed shrimp is the largest contributor to foreign exchange followed by lobster and conch.

Out of 2,100 licensed fishermen in Belize in 2000, there were approximately 300 in the five FON communities (Perez 2000). The Placencia area has the third largest concentration of fishing vessels in the country. Fishing is important to Placencia, with 69 registered fishing vessels in 1999. Still, due to the relatively small number of fishermen in the South of the country, many fishermen from the North (largely from the Sartenega/Copper Bank/Chunox area) migrate down to these waters to fish. All of the main types of fisheries in Belize are carried out in the area including lobster, conch, finfish, and shrimp. This local fishery is very dynamic, recruiting young people into it and putting more pressure on the fishery. Many fishermen report having secondary occupations in the tourist industry as tour guides or working in construction (Heyman and Graham 2000). Indeed, in discussions with fishers in Placencia and other villages, most will admit that there are only a dozen or so focused commercial fishers, in terms of those who only fish for a living and do not partake in the tourism industry in the off season.

Tourism

Tourism in the area is primarily nature-based. The attractions are the sea/cayes, Monkey River for sightseeing of riverine flora and fauna, the Jaguar reserve about one hour away, and archeological sites farther south. The Placencia area is still a relatively new destination. Tourism became a major economic activity in the mid-1990s. I t is currently considered the fourth largest tourist destination in Belize. Marine-based tourism activities include SCUBA diving, snorkeling, kayaking, whale shark viewing, and sport fishing.

It is estimated that 75 percent of all visitors to the area visit Laughing Bird Caye National Park (LBCNP). The caye can be subject to up to 100 visitors in a day during the peak of the season. Two international sailboat charter companies, The Moorings and TMM, have opened operation in the last couple of years and provide boats for cruising in the cayes. The deep water of the Victoria Channel allows small cruise ships access into the heart of the area, and several use Laughing Bird Caye as a destination. Local residents and operators fear the popularity of the northern destinations may lead to larger cruise ship entering the LBCNP area, and are strongly opposed to this. There are reports that entrepreneurs are looking closely at this nearshore cruise ship access with a view to developing as yet undefined docking and transport facilities.

Housing development for tourism, vacation homes and retirement is also increasing along the peninsula. There is a large residential development occurring near Seine Bight. In the growing village of Placencia, recent government initiatives to provide space for housing have led to filling of lagoon areas. As the region becomes more of an internationally known tourism destination, relative land values have risen. The cayes, as well as the

mainland, are becoming increasingly subject to spiraling 'hope values' that may not reflect their true market value yet often lead to damaging 'improvements', such as indiscriminate clearance, intended to push their supposed value higher (CZMAI 2001).

Threats

The Belize reef ecosystem is, like most others in the world, threatened by a number of human activities, as well as natural events, primarily hurricanes (Gibson et al 1998). Global climate change is believed to be responsible for the increase in several coral diseases and coral bleaching. The population of Belize places a modest pressure on the coastal zone, with the principal uses being artisanal fishery, aquaculture, tourism, small-scale shipping and oil exploration. Independence from the UK in 1981 has increased the need to attain economic viability, including expanding pressure on the country's natural resources in order to produce foreign exchange.

Some of the major threats to the country's reefs are fishing, sedimentation, tourism, agro-chemicals, sewage, solid wastes and dredging. Tourism and its associated demands, such as dredging and waste disposal, can exacerbate other detrimental factors. There are different spatial scales of threats superimposed upon each other. However, more attention is now being focused in the country on larger scale issues such as land use planning, pollution, watershed management and regional fisheries management.

Tourism activities also have local impacts in the FON area. While it is still premature to determine any real impacts of tourism on the marine resources of the area, some anecdotal issues have arisen. While the industry generates much needed economic development, on both local and national levels, it has been identified as also leading to reef damage, water quality, illegal camping and litter. Diving and boating activities often result in direct damage to or destruction of corals. Both tourism and fishing activities are involved here.

Overfishing is another main source of impact on FON area reef systems, as the main fisheries for lobster and conch are carried out in reef habitats. Lobster are considered to be at least fully fished, if not overfished (Auil et al. 1999); while conch are clearly overfished, and have been for many years. Finfish fisheries are less intensively fished, and Belize has been considered to have some of the most healthy reef fish stocks in the Caribbean. Reef fish fisheries are used either for subsistence, as an interim activity during closed seasons for the main species, or opportunistically targeting spawning aggregations of valuable species, mainly snappers and groupers, from which large catches can be made rapidly. A study of the reef fish fishery in 1990 - 1991 concluded that this resource was only lightly to moderately exploited (Auil et al. 1999). However, fishing pressure has increased recently, and in particular the targeting of spawning aggregations (SPAGs) has been an issue of considerable concern. SPAGS throughout Belize have been severely impacted by fishing and several are thought to have disappeared (Heyman 2001).

DEVELOPMENT OF FON CO-MANAGEMENT

FON was formed by a small coalition of dive guides, fishermen, tour guides and business people in response to the threat of tourism development in the area. The organization came together to lobby government to declare Laughing Bird Caye (LBC), which had been used historically as a fishing camp, as a protected area and to protect biodiversity and promote the sustainability of the natural resources off the coast of Placencia. Several community meetings were held in order to inform and gain support from the communities. In the early nineties, a petition was started by Friends of Laughing Bird Caye with local communities to develop a protected area at LBC, resulting in the declaration of the park in 1996. In 2000, FOLBC signed a Memorandum of Understanding (MOU) with the Forestry Department to co-manage the park. The Forestry Department mediated a number of community consultations in the Placencia area before agreeing to co-management of Laughing Bird.

At the same time, rising concern over the use of Gladden Spit as a tourism site for interacting with whale sharks, The Nature Conservancy and FOLBC began a consultation process on management of Gladden Spit. In 1999, FOLBC began lobbying government for the declaration of the Gladden Spit and Silk Caye Marine Reserve. The area was declared a marine reserve in 2000. In 2002, FON signed an MOU with the Fisheries Department to co-manage Gladden Spit Marine Reserve.

Given its interests in two MPAs as well as in Placencia Lagoon, FOLBC changed its name to Friends of Nature in early 2002. Office staff and rangers were hired to administer and manage the two MPAs. A Board of Directors was formed, comprising twelve members who represent key stakeholders: the villages of Placencia, Monkey River, Independence, Seine Bight and Hopkins; the Placencia Fishermen's Cooperative; the local Belize Tourism Industry Association; the highest institution of learning in the area; the Tour Guide Association and the local churches. Under its co-management agreement with the government, FON assumes control of the regulations on zoning and the behavior of users. FON is also authorized to police within the zones. FON appointed an advisory committee for the villages in the area to assist in formulating policy on management. A management plan was formulated that went through stakeholder review, and environmental education informational brochures about the MPAs are available.

FON may be identified as unique in its status of being a community-based organization, because of its original emergence in local villages and the number of community consultations which it has organized in an effort to get the local stakeholders 'on board'. Indeed, Laughing Bird and Gladden Spit are two of the only MPAs in Belize that have been locally initiated with community support.

Co-Management of Laughing Bird Caye National Park

National Parks in Belize are established under the National Parks System Act with the management objectives of habitat and species protection, preservation of natural and scenic features of national significance, research and education, tourism and recreation. Formal responsibility is exercised by the Conservation Division of the Forest Department, though the Division has

no budget for the management of the parks.

Laughing Bird Caye National Park (LBCNP) was originally designated as a national park under the National Park System Act in 1991 (SI 167/1991) and covered only the 1.4 acre caye. In 1996, the park was extended to cover the faro and several patch reefs, which includes 4,077 ha of marine area (SI 94/1996). It was designated a World Heritage Site in 1998. The Park is managed under a co-management agreement (2000) between the Forest Department and FON.

Historically, fishers and families from Placencia, Monkey River, Independence, Hopkins and Riversdale used the area for camping, recreation, harvesting finfish, conch and lobster. The level of commercial fishing activity began to wane in the 1980s, but tourism activities gained in popularity. There has been intensive visitation and disturbance of the caye area from visitors, fishers and tourists. Physical damage from improper anchoring of tourist vessels and fishing boats has been reported in the Park. Until recently, stocks of fish continued to decline and be threatened by illegal fishing and camping by fishermen, which has also led to the destruction of the caye's vegetation.

The Park is a complete 'no-take/conservation zone' and management planwas prepared in 2000. Laughing Bird Caye itself is divided into three zones. The rules of these zones are designed to allow recreational activity to take place within the Park in a sustainable manner. The recreation zone is located on the southern tip of the caye and is approximately 35,000 sq. ft in size. Located within this zone are a ranger/visitor center, barbeque pits, a palapa and picnic tables. The visitor center provides compost toilets and solar power. The buffer zone begins at the Ranger Station and ends at the No-entry sign. The preservation zone is a no-entry zone. It is located at the northern tip of the caye and is approximately 20,000 sq ft in size. No activities are allowed within this part of the caye. There are no guest facilities on this end of the caye.

There is a FON biologist and three rangers. The visitor centre building also acts as the temporary Ranger Station. Patrols are carried out daily throughout the Park, and rangers have reportedly had few incidents of noncompliance in the Park. The biologist has obtained baseline readings for most of the routine biological parameters in the Park. Standard measures are being used to ensure comparability with other sites. The biologist has also prepared presentations and brochures for LBCNP.

Co-Management of Gladden Spit Marine Reserve

Marine Reserves in Belize are established under the Fisheries Act for the management and preservation of all biological communities and species including commercial species and their habitats, research, visitation, and controlled extractive use (within specified zones). Marine reserves may include terrestrial areas either as islands or adjacent mainland. All marine reserves are under the responsibility of the Fisheries Department. A minimal budget allotted to the Department means that there is little support for enforcement activities, nor for the management and development of reserves.

The Gladden Spit (and Silk Cayes) Marine Reserve (GSMR) was established in 2000 (SI 68/2000) and consists of some 26,003 acres of exclusively

marine environment. The Reserve is managed under a co-management agreement (2002) between the Fisheries Department and FON. Gladden Spit is located on the southernmost tip of the Barrier Reef just below the wave shadow of Glover's Atoll. It is also known as 'The Elbow', or 'Point-of-Reef' (in Kriol), and it lies approximately 36 km from the coast of Placencia Village.

Gladden is well-known locally for the annual aggregations of fish who migrate to the area to spawn, attracting whale sharks around the time of the full moons of April - June. As a result, the area has become a popular site for both commercial fishermen and dive operators. Since the 1920s, fishermen have congregated at Gladden Spit to harvest fish from these spawning aggregations. The fishers come mainly from Placencia, Seine Bight, Monkey River, Independence and Hopkins. There are also a number of fishers from the northern fishing villages of Chunox, Copperbank and Sartenega, where local fishing grounds are now dormant. Even more pressure is applied by foreign fishers from Honduras and Guatemala who illegally fish the aggregations at night, using GPS to locate the sites and underwater lights to attract fish to the surface.

There is concern regarding the possible depletion of the Gladden Spit aggregations as overfishing is suspected to have depleted many spawning aggregations in Belizean waters. The correlation between whale shark appearance and the presence of fish spawn raises concerns regarding the possible loss of the whale shark tourism if the aggregations are depleted. These issues, as well as rising conflict between domestic and foreign fishers and between local fishers and tour guides, led FON to promote the establishment of marine reserve at Gladden Spit.

A management plan was drafted in 2003 based on consultations in the five villages that FON serves. FON has held consultations with stakeholder groups – fishermen, government and tour guides – to develop a compromise for management in this spawning zone. The plan includes designation of zones and features compromises with local stakeholders to allow for multiple use of the Reserve. Four zones are proposed. The majority of the reserve will be a General Use Zone where fishing will be limited to hand lines and diving. A small Conservation Zone encompasses Silk Cays and some adjacent reefs. Only non-extractive uses will be allowed there and motorized recreational activities will be precluded. A Restoration Zone behind the reef covers a seagrass area in which conch populations are know to have been depleted. Fishing will be restricted here and the area will be used to explore various conch restoration measures. A Special Management Area includes the main spawning aggregation and whale shark area just outside the reef, off the point. Within the Special Management Area, access for fishers, divers and researchers will be limited. It is being discussed whether ten special fishing licenses for the spawning zone in the Reserve will be awarded. Diving will be limited to 60 - 90 divers at any one time, requiring that dive tour operators coordinate their activities to maximize the numbers that can be accommodated, and researchers will be limited to certain times of day, unless tourism dive slots are unfilled. For the tour guides, FON has arranged a system for special site licensing, as well and a special 'whale shark viewing' fee to be paid by tourists wishing to enter the whale shark zone. The number of tour boats and divers

will be controlled, and guides will check in at a pontoon station moored just under the reef at Tarpon Swash.

GSMR has a biologist and three rangers. Patrols are carried out daily throughout the Reserve and rangers have reported various incidents of noncompliance, and have made arrests for violations. The biologist has initiated an extensive monitoring program. Baseline data on corals, conch, lobster and commercial finfish have been obtained. Preliminary monitoring methods have been developed for whale shark behavior and for spawning aggregations. The biologist has also prepared presentations and brochures for Gladden Spit.

CHALLENGES OF CO-MANAGEMENT IN BELIZE

FON has a strategic plan, a Board of Directors, an Executive Director and staff. It has an office and equipment. Both MPAs have management plan in place, and these are being implemented and enforced. Financing has been secured for the immediate future. The MPAs are being managed and the resources are being conserved. Conflicts between local stakeholders are being negotiated, albeit to varying degrees of success. Local stakeholders have greater leverage in decisions affecting the management of local resources. Clearly, co-management has provided a number of benefits, largely related to instigating active management of these MPAs. Several initial observations highlight the challenges FON faces in implementing their co-management arrangements.

Lack of Community Participation

In general, the co-management of MPAs in Belize does not inherently involve broad based community participation. Co-management arrangements in Belize have not been designed primarily as community-based systems with the attendant participatory decision-making structures and processes. The dominant understanding of 'community participation' seems to involve appointing a representative from the community, regardless of whether that individual in fact represents the many interests of that community, or indeed, communicates the activities of the managing NGO to its members.

Lack of Participatory Decision-making

Government in Belize is strongly centralized, so devolving decision-making authority to local stakeholders is often met with resistance, or is not effectively implemented. There are few institutional mechanisms established that allow for community members to be integrated fully and actively into the co-management process.

No Success Indicators

Co-management agreement s in Belize tend to give an NGO responsibility and authority for the daily management of an MPA but they currently do not include any indicators of success. This makes evaluating the process of co-managing MPAs difficult.

Conceptual Confusion

Fishermen tend to be unclear about the concept of co-management as well as their role in the process. Many fishermen and community members have never heard of the term. This confusion extends beyond fishermen to community members, MPA managers and government officials who all share different understandings and expectations of co-management.

Stakeholder perceptions

There is a general perception that the declaration of 'so many' MPAs is the result of a conspiracy between decision-makers , a fewwealthy Belizeans and their foreign 'conservationist' cohorts to destroy the livelihood of small scale fishermen. It is felt that the gains of the MPAs will go to these 'conspirators'. Fishermen state that the MPAs are shrinking the ocean area and they question the conservation bias of the scientists.

Lack of Supporting Legislation

The legislation currently applied to allow for co-management is inappropriate, and, on some points, contradictory to existing co-management initiatives (Ravndal 2002). The National Parks Act gives the Minister great discretionary powers to deviate from the Act, and as such provides little guarantee for long-term conservation of biodiversity of protected areas.

Lack of Government Commitment

Despite the importance placed on them as a fisheries conservation tool and tourist attraction, MPAs are a low priority for government as illustrated by the small budget allocated to the Protected Areas Program. This results in a lack of capacity of key government agencies responsible for management and co-management of MPAs.

Jurisdictional Conflict

Competition, tension, and personality politics among and between managers and policy-makers in various government departments and ministries has resulted in a lack of coordination, cooperation, and commitment among the agencies responsible for MPA management issues.

CONCLUSION

As an institution, FON is in a process of growth and maturity. It has done a very good job of starting from a grassroots organization of local citizens concerned about use of marine resources to a legally recognized and politically significant NGO providing a range of functions for MPA management. FON has proved remarkably flexible, and has adapted well to the changing needs of the MPA and its stakeholders. The priority action items reflect the natural progression of institutional and organizational maturity that FON will develop as it seeks to improve the functions and services that it provides for marine resource management.

Priority action items to improve the activities of FON as reported by respondents include:

i) Improved community involvement,
ii) Improved representation of stakeholders in FON management,
iii) Increased empowerment of stakeholders,
iv) Improved environmental and participatory education programming,
v) Improved transparency and accountability for FON management,
vi) Strengthened self-financing mechanisms, and
vii) Improved trust and respect between FON and stakeholders.

FON has a strategic plan to address many of these issues and needs to implement these objectives and actions. It cannot do so alone, however. Government and donor NGOs involved in the MPA co-management process have important roles to play in facilitating the process and addressing some of the challenges that FON and other local NGOs face in co-managing MPAs in Belize. Government must address jurisdictional conflicts, while legally developing and clarifying the responsibilities and expected outcomes for partners in co-management agreements. Donor NGOs must develop greater awareness of local needs and interests, and seek ways to better accommodate them, lest they risk the imposition of foreign interest in local environments.

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